

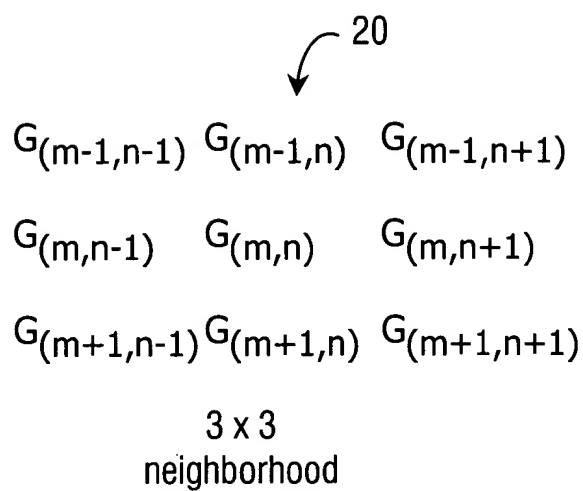


Diagram illustrating a color filter array 100, showing a grid of subpixels (R, G, B) arranged in a repeating pattern. The array is divided into three regions: 10<sub>r</sub> (red), 10<sub>g</sub> (green), and 10<sub>b</sub> (blue). The grid is 8 rows by 12 columns. The subpixels are arranged in a repeating pattern of R, G, and B subpixels. The regions 10<sub>r</sub>, 10<sub>g</sub>, and 10<sub>b</sub> are indicated by arrows pointing to the first, second, and third columns of the grid, respectively.

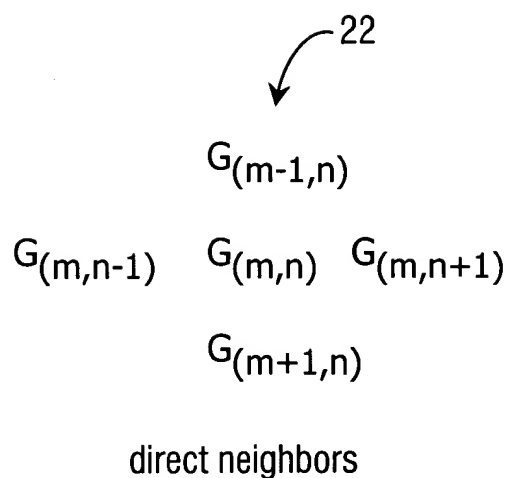
R	G	G	G	R	G	G	G	R	G	G	G
G	G	R	G	G	G	R	G	G	G	R	G
B	G	G	G	B	G	G	G	B	G	G	G
G	G	B	G	G	G	B	G	G	G	B	G
R	G	G	G	R	G	G	G	R	G	G	G
G	G	R	G	G	G	R	G	G	G	R	G
B	G	G	G	B	G	G	G	B	G	G	G
G	G	B	G	G	G	B	G	G	G	B	G

color filter array

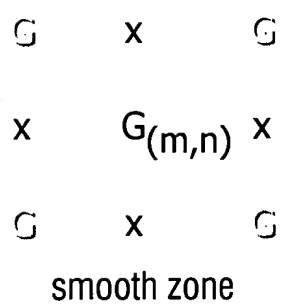
## Figure 2



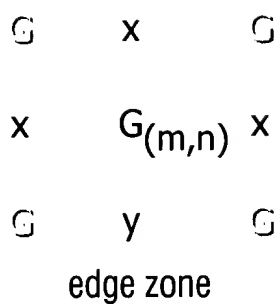
### Figure 3A



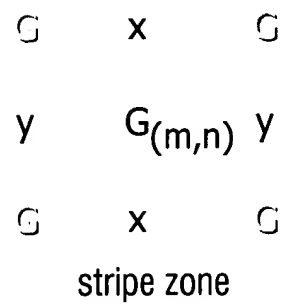
### Figure 3B



### Figure 3C

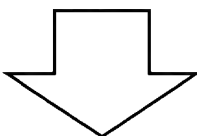


### Figure 3D



### Figure 3E

R	G	G	G	R	G	G	G	R
G	G	R	G	G	G	R	G	G
B	G	G	G	B	G	G	G	B
G	G	B	G	G	G	B	G	G
R	G	G	G	R	G	G	G	R
G	G	R	G	G	G	R	G	G



$H_R$	G	G	G	$H_R$	G	G	G	$H_R$
G	G	$H_R$	G	G	G	$H_R$	G	G
B	G	G	G	B	G	G	G	B
G	G	B	G	G	G	B	G	G
$H_R$	G	G	G	$H_R$	G	G	G	$H_R$
G	G	$H_R$	G	G	G	$H_R$	G	G



### Figure 4

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

### Figure 5A

smooth zone

### Figure 5B

x

x    $H_{R(m,n)}$    \*   \*   y

\*

\*

corner zone

x  $H_{R(m,n)}$  \* \* y

\*

\*

corner zone

\*

\*

corner zone

### Figure 5C

$x$   $H_{R(m,n)}$   $*$   $*$   $x$   
 $*$   
 $*$   
 stripe zone

\*

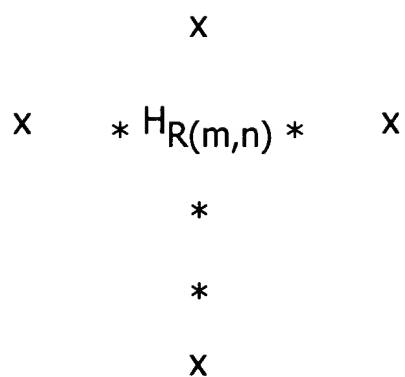
\*

stripe zone

### Figure 5D

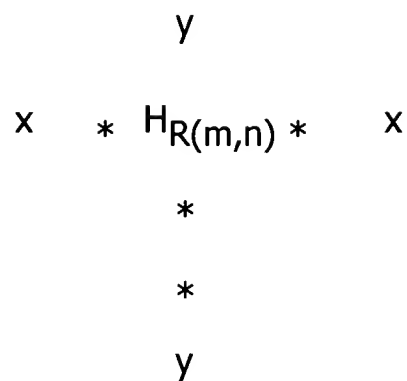
$$\begin{array}{ccccc}
 & & H_{R(m-1,n)} & & \\
 & & & & \\
 H_{R(m,n-1)} & * & H_{R(m,n)} & * & H_{R(m,n+2)} \\
 & & & & \\
 26 & \nearrow & * & & \\
 & & * & & \\
 & & H_{R(m+3,n)} & &
 \end{array}$$

### Figure 6A



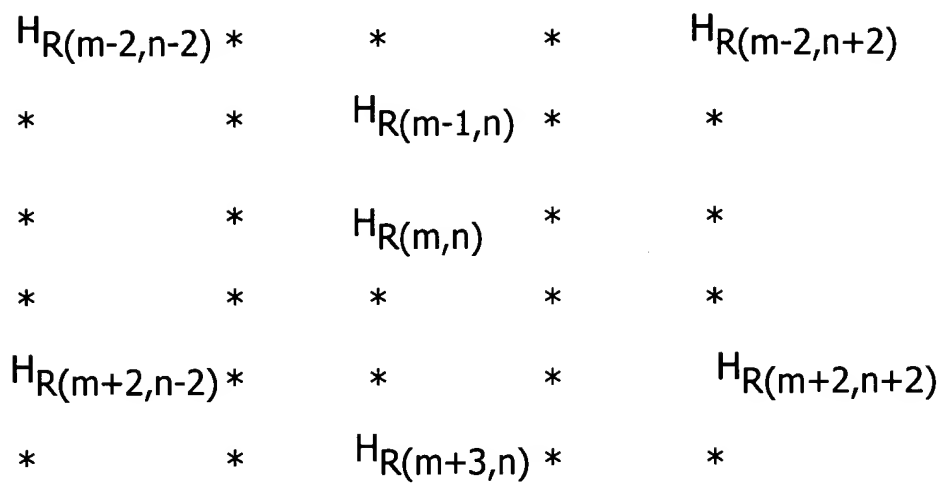
smooth zone

### Figure 6B

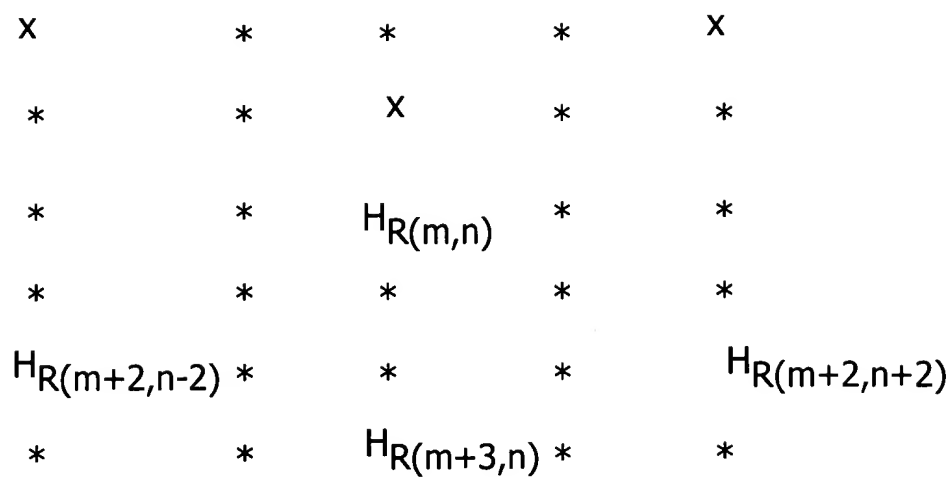


stripe zone

### Figure 6C



**Figure 7A**



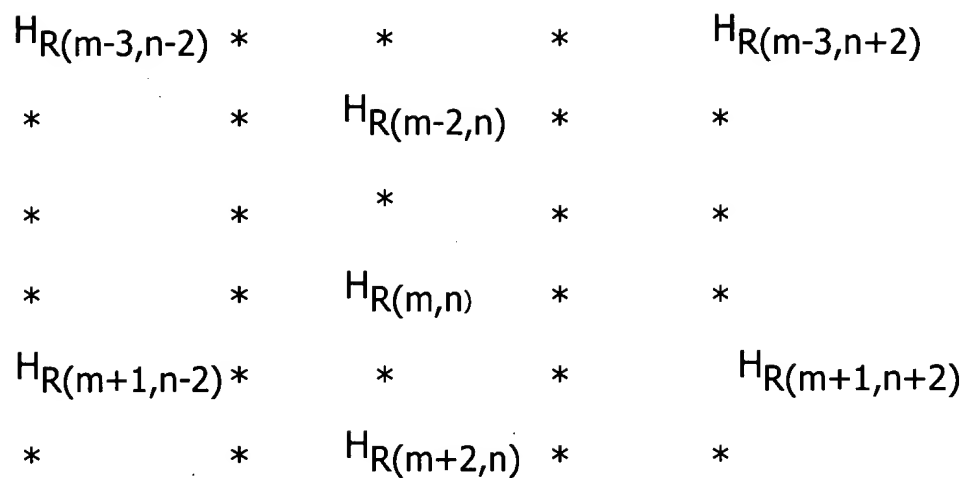
smooth zone

### Figure 7B

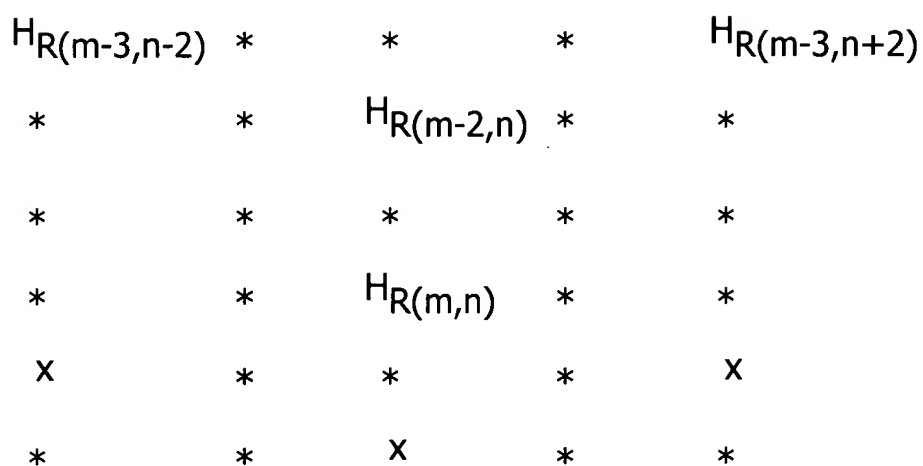
[illegible]







### Figure 8A



smooth zone

### Figure 8B



```
graph TD; 500([begin]) --> 502[502 determine known green values]; 502 --> 504[504 estimate unknown green values using known green values]; 504 --> 506[506 determine red (blue) hue to pixels with known red (blue) values: red (blue) hue = red (blue) value - green value]; 506 --> 508[508 estimate unknown red (blue) values using known red (blue) hues]; 508 --> 510[510 determine red (blue) values to pixels with estimated red (blue) hues: red (blue) value = red (blue) hue + green value]; 510 --> done([done]);
```

### Figure 9